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(71) Applicant(s)  
Timothy James Shepherd  
PO Box 1348, LONDON, W5 4ZJ, United Kingdom

(72) Inventor(s)  
Timothy James Shepherd

(74) Agent and/or Address for Service  
Timothy James Shepherd  
PO Box 1348, LONDON, W5 4ZJ, United Kingdom

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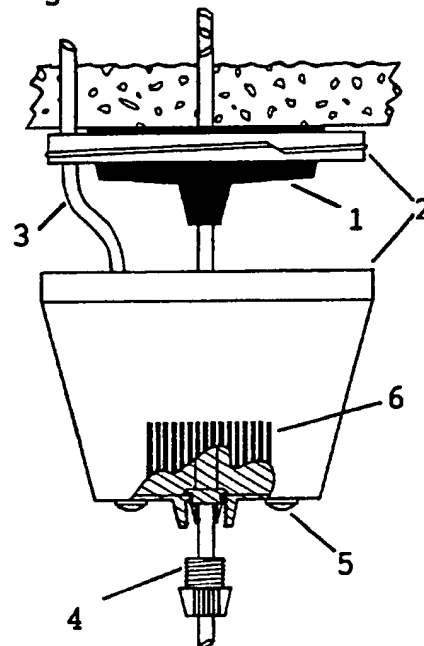
(56) Documents Cited  
GB 2267594 A GB 2221331 A GB 2221074 A  
GB 2189634 A

(58) Field of Search  
UK CL (Edition M ) G4N NAA

(54) Lighting smoke alarm

(57) A smoke alarm with seperatable shell housing 2 incorporating an aperture or conduit enabling the entire alarm to be fitted or installed on a ceiling over cabling or wiring or conduit or their attachments as in domestic or commercial ceiling lighting systems 1 or to contain, where appropriate, the cabling attachment fitting as in a "ceiling rose" (Fig. 4). When installed thus the alarm can, where desirable, be utilised as a suspension unit for chain or wire hung lighting fittings with the addition of a suitable suspension device for this purpose (5).

Fig 1



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Fig 1

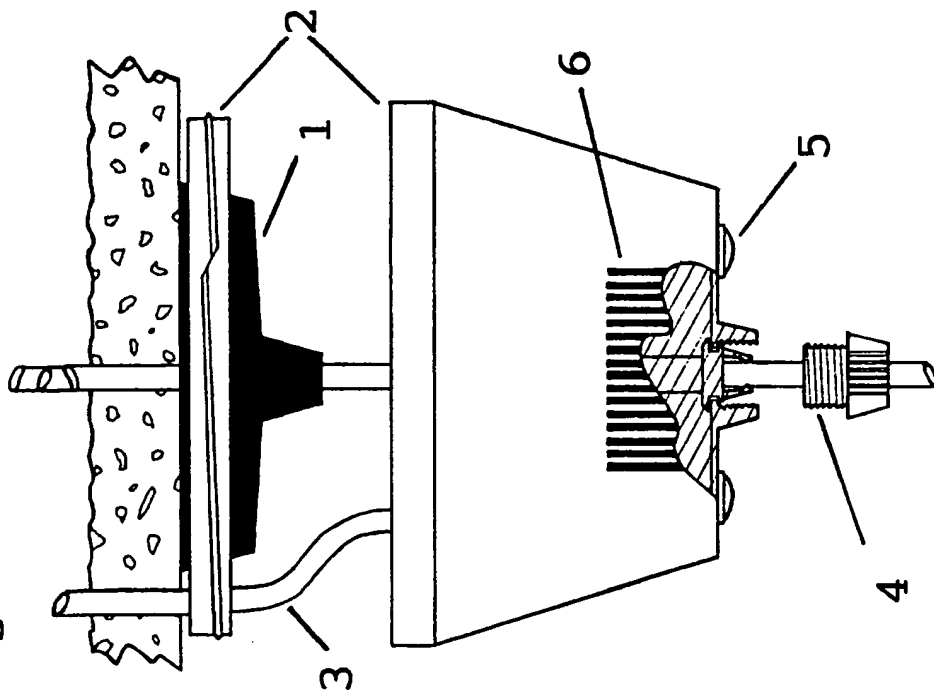
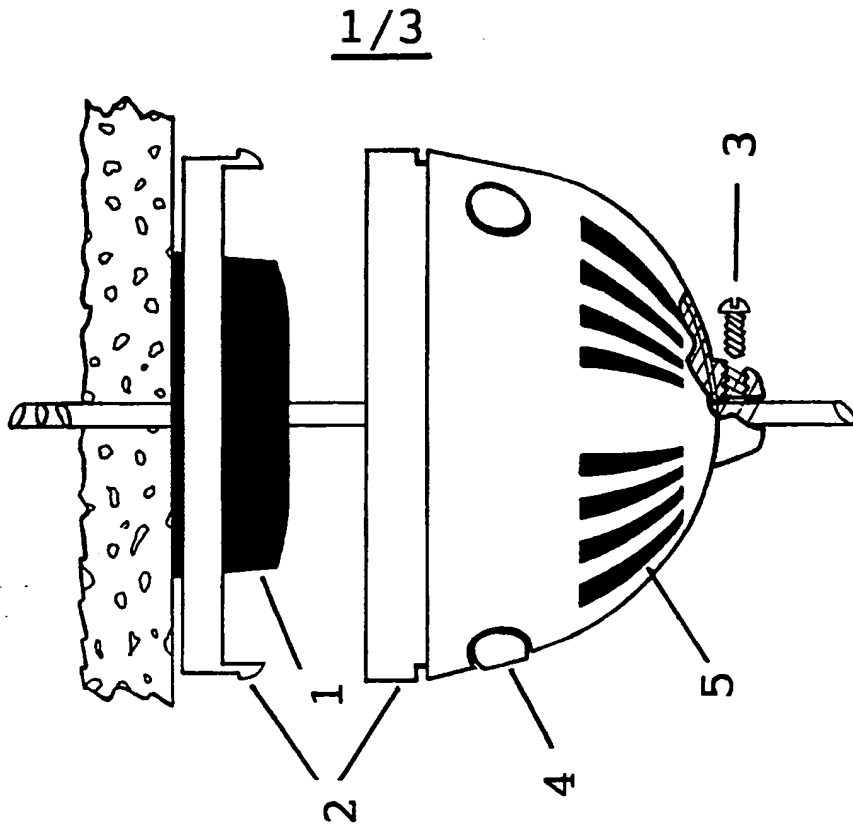
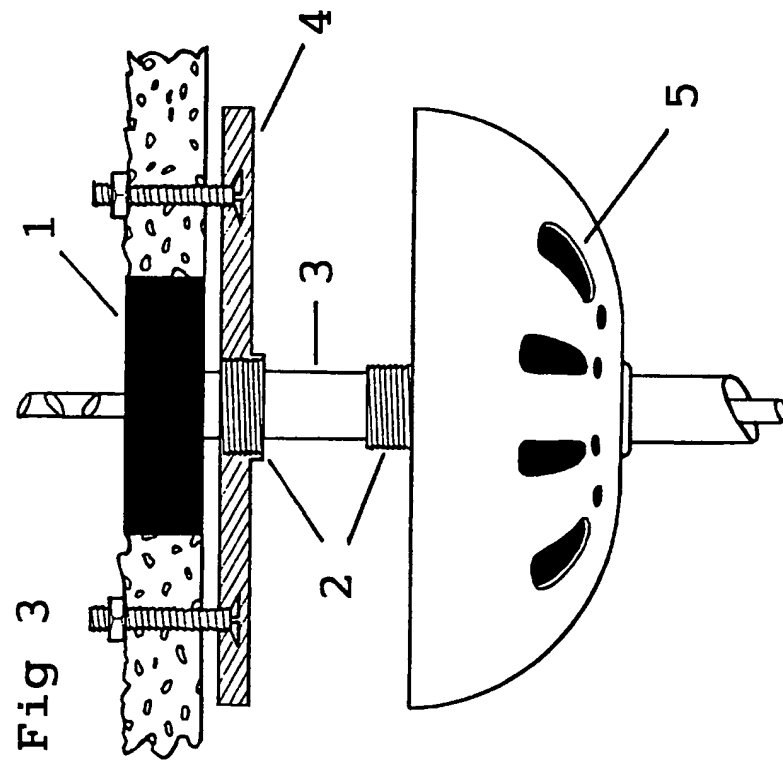
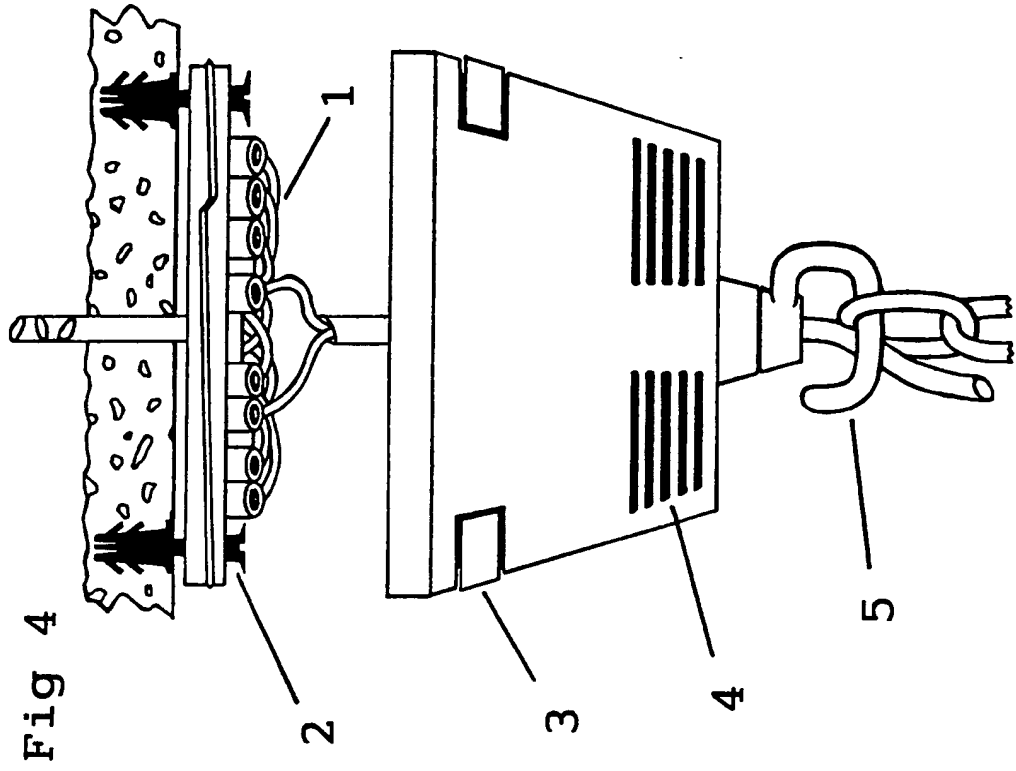
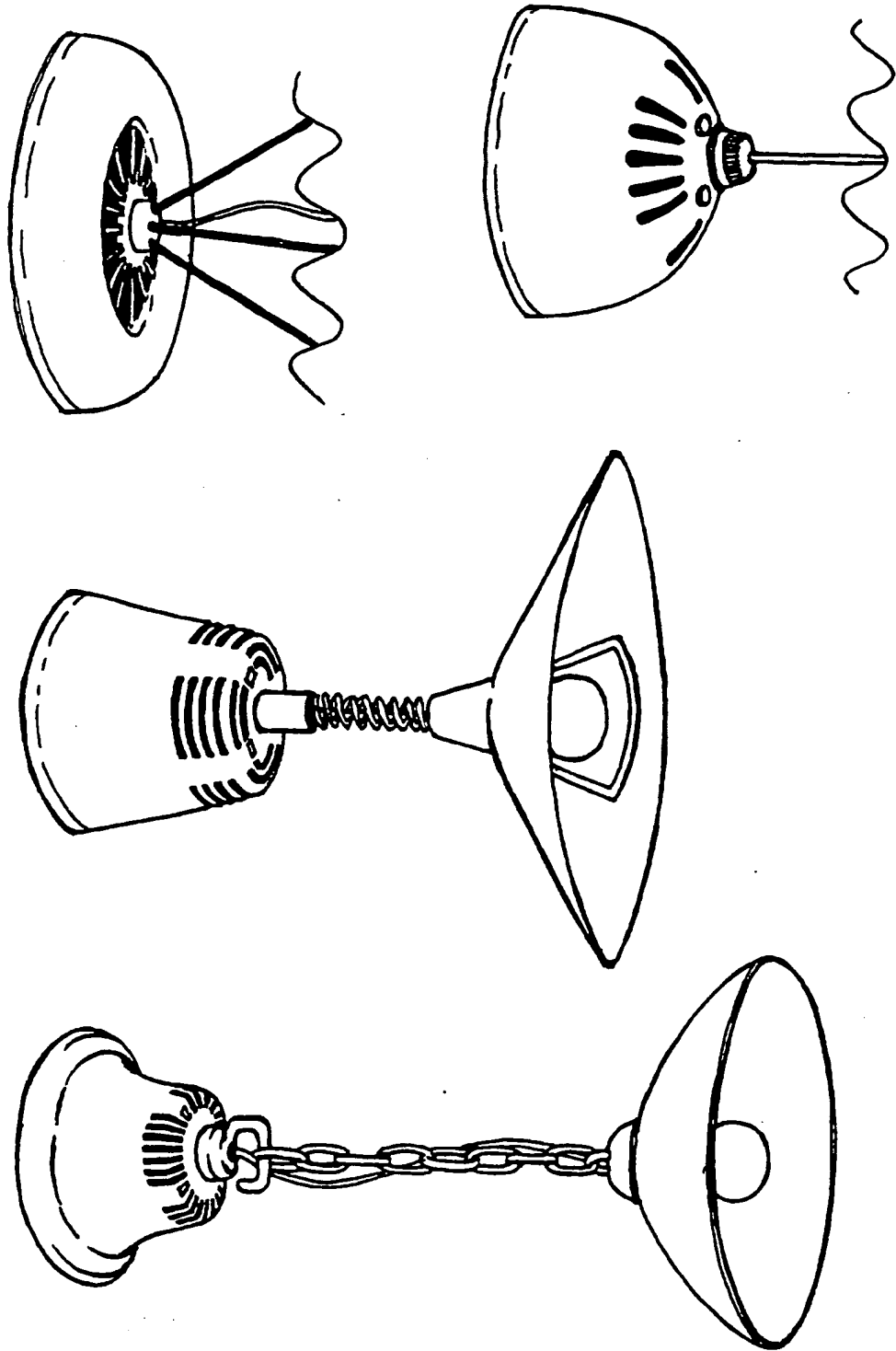


Fig 2







## LIGHTING SMOKE ALARM

This invention relates to a smoke alarm able to be fitted or installed over cabling/wiring/conduit or their attachments as used in domestic or commercial lighting systems.

It is universally accepted that the presence of a working detection and alarm system can save life as an early warning in the case of smoke pollution and also widely recommended that the opportunity to escape fire or smoke is enhanced by every additional alarm unit installed. However, many users are deterred from installing more than one unit by the complications of installation and also by the obtrusive appearance of an alarm in surroundings where it may conflict with decor.

According to the present invention there is provided a smoke alarm with a separable shell housing which incorporates a central aperture or conduit enabling the entire alarm to be positioned over the existing cabling/wiring/conduit of a ceiling lighting fitting and, where appropriate, the cabling attachment fitting - commonly and hereinafter called 'ceiling rose' (U.K.) - or, where these fittings are not installed, to contain within the shell housing the means to connect a ceiling lighting circuit as in a 'ceiling rose' - and then to be installed flush against the ceiling with a clip or fastening device as appropriate, or where necessary, the more conventional method of screw/bolt anchor fastening.

Once the invented alarm is installed thus, its appearance is as that of a decorative 'ceiling rose' and so alleviates the need to have a separate electrical device apparently visible within any room and will usually, by virtue of this fixing location, be at the desired central location to detect smoke. The basic invention can also be decoratively enhanced by varying the design, materials and colours used in the manufacture of the shell housing. Its usefulness in its installed position can be extended by the addition of a 'hook' or suspension device from which chain or wire hung light fittings can be suspended.

Some main attributes of this invention are:

- 1) The simplicity and versatility in its methods of installation which in some instances involves no drilling, screw or bolt fastening or adhesives.
- 2) Its aesthetic decorative value as a centerpiece 'ceiling rose'.
- 3) The likelihood that its position of installation will be ideal to detect smoke within a room.
- 4) Its capacity to serve as a warning system and light fitting suspension unit when used with the aforementioned 'hook' or suspension device.

This invention is not dependant on any particular internal component arrangement or type of alarm component or control or power supply other than that all its components will have to remain functional in the proximity of the lighting system it is required to be installed on and the suitability of these components to function within the parameters of the invention as a reliable smoke alarm.

A smoke alarm in accordance with the invention and with reference to the above description and attributes is further described below with the use of denoted drawings. The drawings show varying installation, connection, assembly/disassembly and design factors which incorporate industry standard components and sample design features. They are intended to illustrate the basic invention and its design flexibility as described but cannot be comprehensive as features shown in each drawing could be incorporated within alternative assemblies and features not shown could be incorporated to enhance the basic invention.

DRAWINGS - 3 PAGES

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Fig.1. Shows the invention as during installation over a common type of 'ceiling rose'(1) in its seperate parts; the ceiling base section and the main alarm housing which will

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screw together using an industry standard thread system (2). This drawing shows how the alarm power source could be from a mains circuit or low voltage circuit with the supply cable fed through the ceiling base section (3). The threaded fastening device (4) will slide up the existing lighting cable (shown already within the alarm conduit in the hatched section) and fix the alarm flush with the ceiling when fully installed.

Possible positions for test switches or lights or guide lights are suggested (5) and smoke intake vents are suggested (6).

Fig. 2. This drawing shows the alarm during installation over a different type of 'ceiling rose' as common in some areas(1) and an alternative shell housing separation clip (2) and in this case the alarm is held against the ceiling with a 'grub' screw attachment (3) which grips the existing lighting cable at the bottom of the alarm's conduit. Alternative possible positions for control switches or lights or guide lights are shown (4) and smoke intake vents (5).

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Fig. 3. This drawing demonstrates the invention during installation over a 'ceiling rose' flush in the ceiling as common in some areas (1) and (2), how the shell housing



could fit together in some instances where pendant lighting systems are suspended with a conduit rather than just the lighting cable. In this instance the alarm conduit or aperture will be of sufficient diameter to slide over the existing conduit (3). The alarm ceiling base section is here shown in section to illustrate the alternative means of support of screw/bolt fixings (4) in the event that the alarm or its attachments would not adequately be supported by another method. A possible design of smoke intake vents is shown (5).

Fig. 4. Shown here is the invented alarm during installation where there is no existing 'ceiling rose' but where the ceiling base section incorporates the cabling attachment fitting as in a 'ceiling rose' (1). Here, the alarm is used also as a lighting fitting suspension unit and the base section is fixed to the ceiling using screw/bolt fastenings as appropriate (2). Possible placings for control or test switches or lights or guide lights are shown (3) and possible smoke intake vent design is shown(4). Although a lower fastening device would not be necessary for this type of alarm installation, in this case the alarm is shown with a similar device as that in Fig. 1 but adapted for the suspension of a chain or wire hung light fitting (5).

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This page shows perspectives of various designs based on the invention demonstrating the scope of design flexibility afforded by the basic elements as described above. All are seen in their fully installed positions.

CLAIMS

- 1) A smoke alarm with a seperatable housing in which is provided an aperture or conduit for the purposes of its installation over the cabling/wiring/conduit (and their connected devices) of a ceiling lighting arrangement and is thereby held flush against the ceiling by a fastening device or devices.
  - 2) A smoke alarm substantially as in claim 1), wherein the alternative means of ceiling fixing by screw or bolt or anchor device is provided.
  - 3) A smoke alarm as in claims 1) & 2) which can be utilised to suspend chain or wire hung lighting fittings with the incorporation of a suitable hook or suspension device for this purpose.
  - 4) A smoke alarm as in claims 1), 2) & 3) wherein the housing may contain the means to connect a ceiling lighting circuit as in a 'ceiling rose'.
  - 5) A smoke alarm as in all above claims which, while embodying the basic outlines of the accompanying description and drawings, is not dependant on any particular type of power source, back-up power source, re-charging source, warning system, circuitry or lighting systems other than their suitability for the purposes of their most efficient function as a smoke warning system using the claims of this invention.
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**Patents Act 1977**  
**Examiner's report to the Comptroller under Section 17**  
**(The Search report)**

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**Relevant Technical Fields**

(i) UK CI (Ed.M) G4N NAA

(ii) Int CI (Ed.)

Search Examiner  
D SUMMERHAYES

Date of completion of Search  
12 SEPTEMBER 1994

**Databases (see below)**

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii)

Documents considered relevant  
following a search in respect of  
Claims :-  
1-5

**Categories of documents**

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|---|---|
| <b>X:</b> Document indicating lack of novelty or of inventive step.   | <b>P:</b> Document published on or after the declared priority date but before the filing date of the present application.        |
| <b>Y:</b> Document indicating lack of inventive step if combined with one or more other documents of the same category. | <b>E:</b> Patent document published on or after, but with priority date earlier than, the filing date of the present application. |
| <b>A:</b> Document indicating technological background and/or state of the art.   | <b>&amp;:</b> Member of the same patent family; corresponding document.   |

Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2267594 A (OLIVER)	1-5
X	GB 2221331 A (KINGSTON)	1-5
X	GB 2221074 A (CAIRNEY)	1-5
X	GB 2189634 A (BENSON)	1-5

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